

**REMOTE LASER BEAM DELIVERY SYSTEM AND METHOD FOR USE WITH A
ROBOTIC POSITIONING SYSTEM FOR ULTRASONIC TESTING PURPOSES**

ABSTRACT

The invention is directed to an ultrasonic testing system.

5 The system tests a manufactured part for various physical attributes, including specific flaws, defects, or composition of materials. The part can be housed in a gantry system that holds the part stable. An energy generator illuminates the part within energy and the part emanates energy from that

10 illumination. Based on the emanations from the part, the system can determine precisely where the part is in free space. The energy illumination device and the receptor have a predetermined relationship in free space. This means the location of the illumination mechanism and the reception mechanism is known.

15 Additionally, the coordinates of the actual testing device also have a predetermined relationship to the illumination device, the reception device, or both. Thus, when one fixes the points in free space where the part is relative to either of the illumination device or the reception device, one can fix the

20 point and/or orientation of the testing device to that part as well. It should be noted that the results of the point and/or orientation detection may also be used in an actuator and control system. If the position of the testing device needs to be altered with respect to the tested object, the control system

25 and actuator may use the results of this determination to move the testing device relative to the tested object.